

**FIRST REPORT OF THE NEOTROPICAL DAMSEL BUG
ALLOEORHYNCHUS TRIMACULA (STEIN) IN THE UNITED STATES, WITH
NEW RECORDS FOR TWO OTHER NABID SPECIES IN FLORIDA
(HEMPTERA: NABIDAE: PROSTEMMATINAE)**

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Abstract.—The first report of the prostemmatine nabid *Alloeorhynchus trimacula* (Stein) in the United States is given based on specimens collected in two counties of Florida. We diagnose the genus *Alloeorhynchus*, redescribe and provide photographs of the adult male and female of *A. trimacula*, and give other diagnostic information to help separate this newly discovered immigrant from other North American Nabidae. Also given are the first report of *Phorticus collaris* (Stål) in Florida and additional Florida records for *Pagasa confusa* Kerzhner.

Key Words: Insecta, Hemiptera, Nabidae, damsel bug, *Alloeorhynchus trimacula*, *Pagasa confusa*, *Phorticus collaris*, new records, United States, Florida

The family Nabidae is a relatively small group of predatory bugs, commonly referred to as damsel bugs; Kerzhner (1996) estimated 21 genera and 500 species worldwide. Harris' (1928) monograph of the North American fauna remains the most useful reference to identify members of this family, despite being more than 70 years old. More recently, Henry and Lattin (1988) summarized the literature in their catalog of the Nabidae of Canada and the United States, which included two subfamilies, four tribes, 10 genera, and 34 species. Since then, Asquith and Lattin (1991) established the new genus *Omanonabis* for the western U.S. species *O. lovetii* (Harris) and discussed the taxonomic position of *Nabis edax* Blatchley known from California. Kerzhner (1993) described the two new

species *Lasiomerus andabata* and *Pagasa confusa* from Central America, Mexico, and the United States; resurrected *Hoplistoscelis pallescens* Reuter from synonymy under *H. sordida* Reuter and removed the latter and *H. dentipes* Harris from the U.S. list; gave species status to *Pagasa fusca* var. *nigripes*; and synonymized the subgenus *Parapagasa* Hussey under *Lampropagasa* Reuter. Kerzhner (1996) reduced *Omanonabis* to a subgenus of *Nabis* Latreille. Blinn (1996) reported *Phorticus collaris* Stål in North Carolina and Tennessee, a species previously known only from west of the Mississippi River, and Wheeler (2001) gave additional records and field notes for *Lasiomerus andabata* in Florida.

During ongoing faunal surveys in Florida, we have discovered specimens of three

poorly known prostemmatine Nabidae. In this paper, we give the first records for *Alloeorhynchus trimacula* (Stein) in Florida and the United States, redescribe and provide photographs of the adult male and female, and furnish other diagnostic information to help separate this newly recognized immigrant from other North America Nabidae. Also given are the first report of *Phorticus collaris* in Florida and additional Florida records for *Pagasa confusa*.

Acronyms used for depositories cited in the paper are as follows: ABS (Archbold Biological Station, Lake Placid, Florida); FSCA (Florida State Collection of Arthropods, Gainesville, Florida); VGC (Vince Golia Collection, Boynton Beach, Florida); and USNM ([United States] National Collection and Natural History, Washington, D.C.).

Genus *Alloeorhynchus* Fieber 1860

Alloeorhynchus Fieber 1860: 43 (n. gen.), 1861: 159 (first included species); Stål 1865 (3): 40 (descrip.), 1873: 107; Champion 1900: 300 (descrip.); Distant 1904: 393 (descrip.); Kerzhner 1981: 113 (descrip., genitalia); Henry and Lattin 1988: 518 (cat., distr.); Froeschner 1999: 141 (cat.). Type species: *Pirates flavipes* Fieber, 1836. Subsequent monotypy by Fieber 1861.

Alloeorrhynchus [sic] (*Alloeorrhynchus* [sic]): Reuter and Poppius 1909: 33 (descrip., key); Barber 1922: 103 (diag., key); Harris 1928: 12 (descrip., key).

Discussion.—The prostemmatine genera *Alloeorhynchus* Fieber, *Pagasa* Stål, and *Phorticus* Stål are known to occur in the United States (Harris 1928, Henry and Lattin 1988). The genus *Phorticus* may be recognized by the dull body texture, four-segmented antenna (supplementary segment II greatly reduced or absent), and the presence of a ventral median keel on the first visible abdominal segment. Both *Alloeorhynchus* and *Pagasa* can be distinguished from *Phorticus* by their overall shiny body texture,

five-segmented antenna (presence of a distinct supplemental segment II), and the lack of a distinct median keel on the first abdominal segment. *Pagasa* is best recognized by the long supplementary antennal segment II (Fig. 1) that is half or more the length of antennal segment I, the relatively slender pro- and mesofemora (Figs. 2–3) that lack a stout tooth at the middle of each, and the overall uniformly shiny black body coloration. *Alloeorhynchus* is distinguished from *Pagasa* by the short supplementary antennal segment II (Fig. 4) that is much shorter than half the length of antennal segment III, the angularly widened pro- and mesofemora (Figs. 5–6) with each angle bearing a stout tooth, and the overall pale or multicolored body, often with yellow, orange, or red on the pronotum. Only the subgenera *Alloeorhynchus* and *Psilistus* Stål are recognized in *Alloeorhynchus*, and only the former is known from the New World.

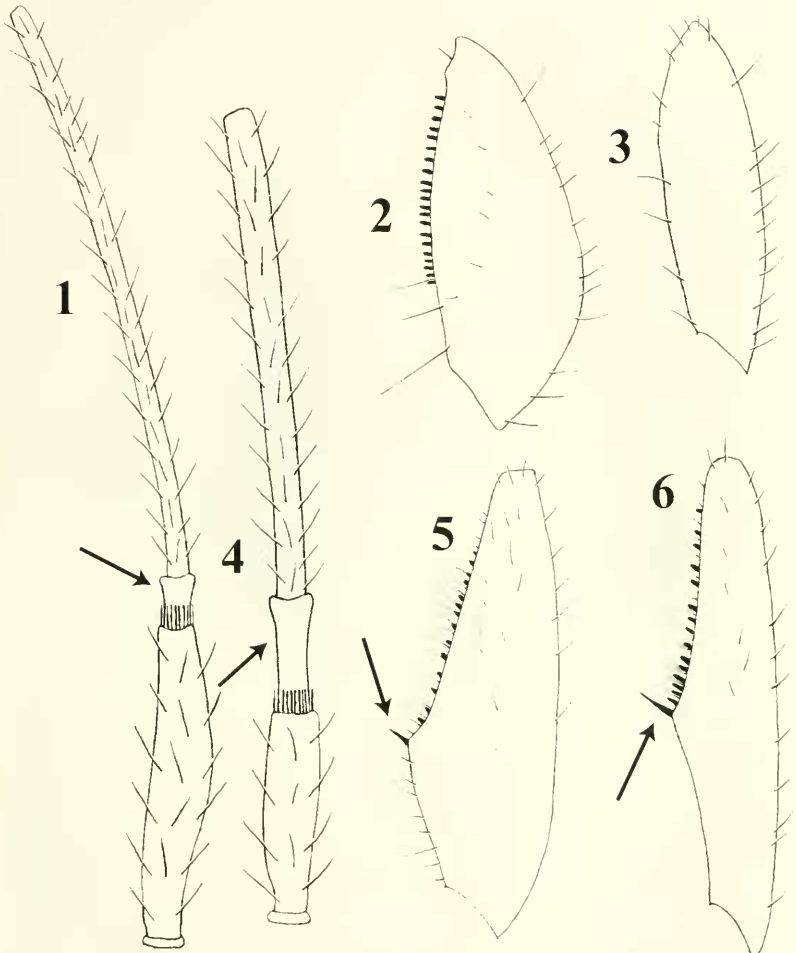
Alloeorhynchus trimacula (Stein) 1857 (Figs. 4–11)

Prostemma trimacula Stein 1857: 76 (n. sp.).

Alloeorhynchus trimacula: Stål 1873: 109 (distr.); Champion 1900: 300 (distr.); Froeschner 1999: 141 (cat.).

Alloeorrhynchus [sic] (*Alloeorrhynchus* [sic]) *trimacula*: Reuter and Poppius 1909: 40 (descrip., distr.); Barber 1922: 104 (diagnosis in key); Harris 1928: 16 (descrip., distr.); Blinn 1996: 216 (note).

Diagnosis.—This species (Figs. 7–11) can be recognized by the stout, shiny body having the head, three marks on posterior lobe of pronotum (one at each posterior angle and a triangular one at base of midline), scutellum, hemelytra, ventral area of thorax, lateral line on abdomen, and a spot on each of connexival segments 3–6 black; the bright reddish-orange pronotum, except for three black marks on posterior lobe; and the pale testaceous to pale brownish-white abdomen with the lateral line on each side and the genital segments black.



Figs. 1-6. Antennae and femora of *Pagasa* and *Alloerhynchus* spp. 1-3, *Pagasa fusca* (δ). 1, Antennal segments I-III (arrow indicates long antennal segment II). 2, Profemur. 3, Mesofemur. 4-6, *Alloerhynchus trimaculata* (δ). 4, Antennal segments I-III (arrow indicates short antennal segment II). 5, Profemur (arrow indicates angulate area at middle bearing stout spine). 6, Mesofemur (arrow indicates angulate area at middle bearing stout spine).

Description.—Male (Figs. 9–10): Length 4.99 mm, width across widest area of hemelytra 1.44 mm, width across widest area of connexivum 1.90 mm. *Head*: Width 0.75 mm, vertex 0.31 mm; uniformly shiny black. *Rostrum*: Length 1.40 mm, extending to mesocoxae; fuscous. *Antenna*: Segment I, length 0.51 mm; II, 0.95 mm; III, 0.83 mm; IV, badly curled; segment I testaceous, becoming infuscated on apical half; segment II–IV brown to fuscous. *Pronotum*: Length 1.30 mm, basal width 1.54 mm; pronotum shiny red to reddish orange, except for black collar on anterior lobe and three black marks on posterior lobe, one at each posterior angle and along lateral edge and a triangular-shaped one at base of midline. *Scutellum*: Uniformly dull black, with three large, deep punctures; clothed with long, pilose setae about $2 \times$ length of setae on hemelytra. *Hemelytron*: Macropterous; uniformly shiny black, including membrane; thickly clothed with erect, simple setae about half the length of setae on scutellum. *Ostiole area*: Evaporative area dull black, becoming paler on lower half; auricle mostly shiny fuscous or black, elongate, horizontal, extending nearly to posterior edge of metapleuron. *Ventral surface*: Thorax uniformly dull black; abdomen pale testaceous or pale brownish white with lateral line, genital capsule and adjacent segments, and a spot on each of connexival segments 3–6 black. *Legs*: Overall pale testaceous, apex of procoxa becoming fuscous or black; pro- and mesofemora pale fuscous or black on apical halves, more so on outer face, metafemora fuscous or black on apical third; tibiae black at base and apex; tarsi and claws fuscous. Parameres symmetrical, reduced (see Harris 1928: 96, fig. 10).

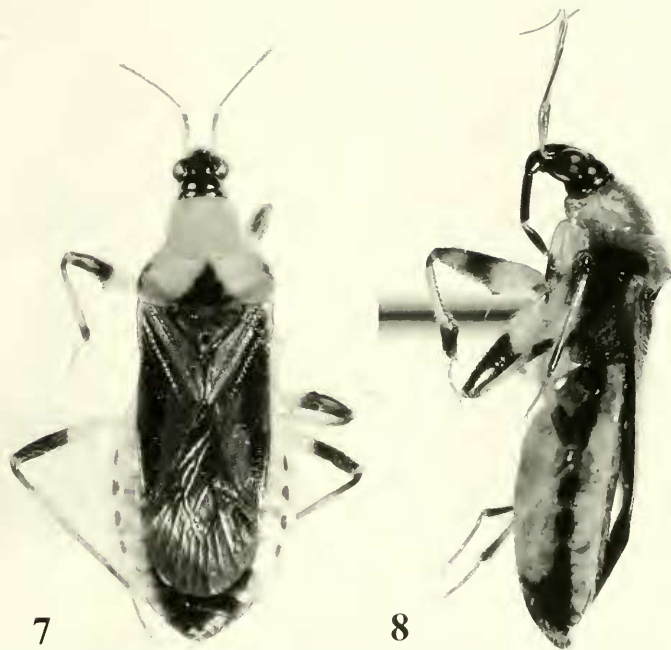
Female (Figs. 7–8): Similar to male in coloration but larger in overall size; hemelytron sometimes submacropterous, not quite extending to apex of the abdomen. Length 5.95 mm, width across widest area of hemelytra 1.68 mm; width across widest area of connexivum 2.38 mm. *Head*: Width 0.78 mm, vertex 0.30 mm. *Rostrum*:

Length 1.54 mm. *Antenna*: Segment I, length 0.58 mm; II, 1.14 mm; III, 1.00 mm; IV, ca. 1.16 mm (curled). *Pronotum*: Length 1.43 mm, basal width 1.76 mm.

Distribution.—Previously known from Brazil, Guatemala, Mexico, and Panama (Harris 1928). Florida represents the first record for the United States.

Specimens examined.—MEXICO: Tamaulipas: 1 ♀, Adolfo Lopez Mateos, El Chamalito camino al Paraiso, 30-III-2001, 400 m, L. Cervantes and N. Peñaloza (FSCA), on ground below *Ficus cotinifolia* H. B. & K. [Moraceae] (FSCA); Veracruz: 1 ♂, Lake Catemaco, 1–15 VII 1963, D. R. Whitehead (USNM); Veracruz: 1 ♂, 1 ♀, Actopan La Mancha, 26-XI-1998 & 19-VIII-2001, L. Cervantes, on the ground beneath *Ficus* sp. (USNM). UNITED STATES: Florida: 1 ♀, Alachua Co., Gainesville, NE 31 Ave. at 9th St., 10-VII-1995, J. Eric Cronin, on *Gaura angustifolia* Herb. Willd. Ex Steud. [Onagraceae] (FSCA); 1 ♀, Highlands Co., Archbold Biol. Sta., 1 Feb. 1999, Mark Deyrup, taken in yellow bowl trap on main grounds in disturbed oak hammock with ferns (ABS); 1 ♀, Highlands Co., Archbold Biological Station, 12-II-1999, L. Riopelle and Mark Deyrup, taken in yellow bowl trap on main grounds in disturbed hammock with ferns (ABS); 1 ♀, Highlands Co., Archbold Biol. Sta., 16 August 2000, Mark Deyrup, taken on walkway by main building (FSCA); 1 ♀, Highlands Co., Archbold Biol. Sta., 1 Feb. 2001, Mark Deyrup, taken in yellow bowl trap at bayhead by Lake Annie (USNM); 1 ♀, Palm Beach Co., Boca Raton, Route 441, 24 Aug. 1988, Vince Golia, at mercury vapor light (VGC); 2 ♂, St. Lucie Co., Ft. Pierce, City Park on Florida Avenue between SW 11 & 12 St., in leaf litter under *Ficus lutea* Vahl [Moraceae], 18-IX-2001, S. E. Halbert, G. B. Edwards, K. Hibbard, & J. Brambila (USNM); 1 ♀, St. Lucie Co., Ft. Pierce, City Park, 12-VII-2001, Ken Hibbard, Park, on soil below *Ficus lutea*, FSCA #E2001-2822 (USNM).

Discussion.—Only two species of *Al-*



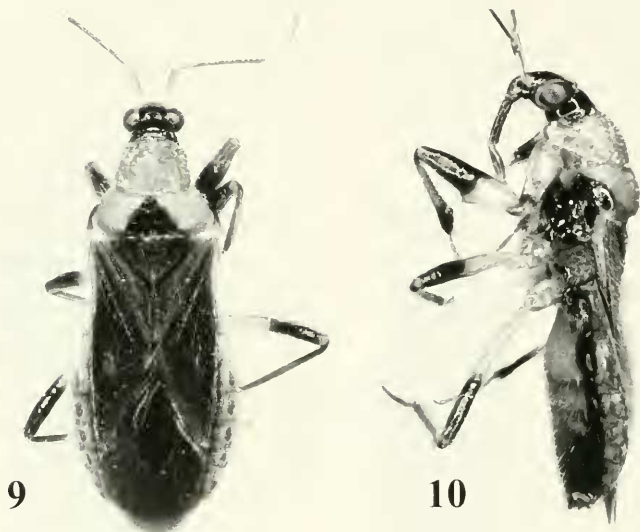
Figs. 7-8. Photographs of *Alloeorhynchus trimacula*, adult ♀. 7, Dorsal aspect. 8, Lateral aspect.

loeorhynchus are known from the United States. In addition to *A. trimacula* reported from Florida in this paper, *A. nigrolobus* Barber is known from Arizona and Texas (Barber 1922). *Alloeorhynchus trimacula* can be separated from *A. nigrolobus* by the larger size (4.50–6.00 mm), the red to reddish-orange pronotum with three fuscous spots on the hind lobe (one at each posterior angle and one at base of middle), and the uniformly black hemelytra. *Alloeorhynchus nigrolobus* may be distinguished by the much smaller size (less than 4.00 mm), the bicolored pronotum with the anterior lobe pale brown and the posterior lobe black, and pale testaceous hemelytra.

Alloeorhynchus trimacula has been collected in several localities of Florida in leaf litter under *Ficus lutea* where lygaeoid

nymphs occur. Only one specimen was taken on a plant, *Gaura angustifolia*. Luis Cervantes (personal communication) has observed this nabid feeding on lygaeoid nymphs in leaf litter under *Ficus* trees in Mexico. In Florida, two males were kept in captivity for 4 and 6 weeks, respectively, on a diet of rhyparochromid nymphs and water. When rhyparochromid nymphs were no longer available, one male survived for two weeks on laboratory-cultured, flightless *Drosophila*.

We consider *A. trimacula* a recent immigrant in Florida. Despite our searches through the Florida State Collection of Arthropods and the National Museum of Natural History, no material collected earlier than 1999 was found. Also, Florida is reasonably well collected, so if this species had



Figs. 9-10. Photographs of *Alloeorhynchus trimacula*, adult ♂. 9, Dorsal aspect. 10, Lateral aspect.

been present much earlier, it should have been found by other collectors. In addition, the distribution of *A. trimacula* in Florida is considerably disjunct from its previously known range, providing further evidence that it is adventive.

Phorticus collaris Stål 1873

Phorticus collaris Stål 1873: 109 (n. sp.);
Champion 1899: 301 (distr.); Henry and
Lattin 1988: 520 (cat.); Blinn 1996: 216
(descrip., distr.).

This species was described from Texas (Stål 1873) and later reported from Teapa, Mexico (Champion 1899). More recently, Blinn (1996) redescribed and illustrated *P. collaris* and gave new county records for Texas (Brazos and Hidalgo counties) and the first eastern U.S. records from North Carolina and Tennessee. *Phorticus collaris*, the only species of the genus known from the United States, can be distinguished from species of *Alloeorhynchus* and *Pagasa* by



Fig. 11. Photograph of adult *Alloeorhynchus trimacula* resting on dead leaf.

the dull body texture, four-segmented antenna, and presence of a median keel on the ventral surface of the first abdominal segment. The specimen recorded below represents a new state record for Florida.

Specimen examined.—UNITED STATES: Florida: 1 ♀, Leon Co., Tall Timbers Research Station, 23 June 1993, Vince Golia, at mercury vapor light (VGC).

Pagasa confusa Kerzhner 1993
(Figs. 1–3)

Pagasa confusa Kerzhner 1993: 43 (n. sp.).

This relatively newly recognized species, described from Costa Rica, Guatemala, Mexico, Panama, Puerto Rico, and the United States (Connecticut to Florida, and west to California), was long confused with *P. fusca*, from which it can be distinguished by the pale legs and greatly reduced male parameres (Kerzhner 1993, figs. 23–25). The genus *Pagasa* may be separated from *Alloeorhynchus* by the overall shiny black body, longer antennal segment II (Fig. 1), and the relatively slender pro- and mesofemora lacking a stout tooth (Figs. 2–3). From *Phorticus*, *Pagasa* may be separated by the shiny black body, five-segmented antenna, and absence of a median keel on the first abdominal segment. Though previously reported from Florida, the only recorded specimen was taken in 1911 from Newberry [Alachua Co.], Florida. Below we provide several new county records based on more recently collected material.

Specimens examined.—UNITED STATES: Florida: 2 ♂, Highlands Co., Archbold Biol. Stn., 27 May 1999, M. Deyrup, in yellow bowl trap near Lake Annie dock (FSCA, USNM); 1 ♂, Highlands Co., Archbold Biol. Stn., 28 Aug. 2000, M. Deyrup, in yellow bowl trap in marshy area near Lake Annie dock (ABS).

ACKNOWLEDGMENTS

We thank Michele Touchet (Systematic Entomology Laboratory, ARS, USDA, c/o National Museum of Natural History,

Washington, DC [SEL]) and Jeffrey Lotz (Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Gainesville, FL) for the photographs of *A. trimacula* [MT, dorsal and lateral views; JL, living specimen on leaf]; and Luis Cervantes (Instituto de Ecología, Xalapa, Veracruz, Mexico) for sharing his field observations and specimens. We also thank Ken Hibbard (Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Fort Pierce, FL), Vince Golia (FSCA Research Associate, Boynton Beach, FL), Eric Cronin (FSCA Research Associate, Gainesville, FL), and Mark Deyrup (ABS) for collecting and sharing their specimens of *A. trimacula*. Susan Halbert (FSCA), J. D. Lattin (Oregon State University, Corvallis, OR), S. Scheffer (SEL), D. R. Smith (SEL), and A. G. Wheeler, Jr. (Clemson University, Clemson, SC) kindly reviewed the manuscript and offered suggestions for its improvement.

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